

What is claimed is:

1. A method of transmitting an electronic program guide (EPG) to identify programs which are to be transmitted, comprising the steps of:

generating EPG data including image data representing images of reduced, less than normal, size to identify respective programs which are to be transmitted;

providing program data constituting at least one program currently being transmitted;

combining said EPG data and said program data; and
transmitting the combined data.

2. The method of claim 1 wherein said EPG data further includes text data representing information associated with said identified programs, said information comprising at least one of title data identifying the title of a program to be transmitted, broadcast data identifying date and time at which said program is to be transmitted and description data providing a description of the program to be transmitted.

3. The method of claim 2, further comprising the steps of providing text data associated with said at least one program currently being transmitted, combining said text data with said EPG data and said program data; and transmitting the combined EPG data, program data and text data.

4. The method of claim 3 wherein said text data associated with said at least one program currently being transmitted comprises at least one of title data identifying the title of said program currently being transmitted, category data identifying a category type of the program currently being transmitted, and transmission channel data identifying the transmission channel over which said program is currently being transmitted.

5. The method of claim 2 wherein said step of providing program data comprises supplying video and audio data of plural programs, each being transmitted over a respective broadcast channel, and compressing said video and audio data to produce compressed program data of said plural programs.

6. The method of claim 5 wherein the step of combining comprises multiplexing the EPG image and text data with said compressed program data of said plural programs, and wherein the number of programs identified by said EPG data is substantially greater than the number of programs with which said EPG data is multiplexed.

7. The method of claim 6 wherein the step of generating EPG data includes updating said EPG data periodically.

8. The method of claim 7 wherein said EPG text data comprises program table data formed of said title and broadcast data and program content data formed of said description data; and wherein said program table data is associated with programs

currently being transmitted and to be transmitted during a predetermined time period, and said program content data is associated with said programs currently being transmitted and to be transmitted during a fraction of said predetermined time period.

9. The method of claim 2 wherein said program data is provided by supplying audio data and a single frame of video data of respective programs to form promotional programs data, each promotional program being transmitted over a respective broadcast channel, and compressing said audio and video data to produce compressed promotional program data of plural promotional programs; and wherein said EPG data and the compressed promotional data are combined by multiplexing the EPG image and text data with said compressed promotional data, the title and broadcast data of said EPG text data constituting program table data and the description data of said EPG text data constituting program content data, such that the multiplexed program table data is associated with programs currently being transmitted and to be transmitted during a predetermined time period and the multiplexed program content data is associated with said programs currently being transmitted and to be transmitted during a fraction of said predetermined time period.

10. The method of claim 1 wherein the step of providing program data comprises supplying groups of program data, each group including video and audio data associated with

plural programs, each program being transmitted over a respective broadcast channel, and compressing the video and audio data of each group to produce groups of compressed program data; wherein the step of combining said EPG data and said program data comprises multiplexing said EPG data with each group of compressed program data to produce respective data output channels; and wherein the step of transmitting comprises supplying each data output channel to a respective satellite transponder for satellite transmission over respective transponder channels.

11. A method of receiving electronic program guide (EPG) and program data transmitted on plural broadcast channels, said EPG data including image data representing images of reduced, less than normal size to identify respective programs which currently are and will be transmitted on several broadcast channels and said program data including video and audio data of plural programs currently being transmitted on respective broadcast channels, said method comprising the steps of:

receiving the program data transmitted on different broadcast channels and the EPG data transmitted with said program data;

separating the received EPG data from the received program data;

storing the separated EPG data;

displaying a program represented by the separated
program data;

selectively retrieving said stored EPG data; and
displaying said images of reduced, less than normal
size represented by said retrieved EPG data, the reduced size
images being displayed in superposition over the displayed
program.

12. The method of claim 11 wherein said retrieved EPG
data identifies respective programs which currently are being
transmitted; and further comprising the steps of selecting one of
the reduced size images and displaying the program identified by
the selected reduced size image.

13. The method of claim 11 wherein the received EPG
data further includes text data representing information
associated with each program identified by said image data, said
text data being selectively retrieved from said stored EPG data
and displayed.

14. The method of claim 13 further comprising the
steps of selecting one of the displayed reduced size images and
displaying the selected reduced size image and the text data
associated with the program identified by said selected reduced
size image.

15. The method of claim 14 wherein said text data
includes title data identifying the title of the associated
program, broadcast data identifying date, time and broadcast

channel at which said associated program is to be transmitted, and description data providing a description of said associated program.

16. The method of claim 13 wherein said text data comprises program table data formed of title, data, time and broadcast channel data for each of the respective programs to be transmitted.

17. The method of claim 16 wherein said text data additionally comprises program content data providing a summary of the content of each of the respective programs to be transmitted.

18. The method of claim 17 wherein said program table data is associated with programs currently being transmitted and programs to be transmitted during a predetermined time period, and said program content data is associated with said programs currently being transmitted and said programs to be transmitted during a fraction of said predetermined time period.

19. The method of claim 17 wherein the received EPG data is multiplexed with the received program data.

20. The method of claim 19 wherein the received program data is compressed and the step of receiving the program data includes the step of expanding the compressed program data.

21. The method of claim 19 wherein the EPG data and program data are received via satellite transmission channels, each satellite transmission channel comprising plural broadcast

channels multiplexed with the EPG data; and wherein the step of separating comprises demultiplexing each satellite transmission channel to recover said EPG data and the program data transmitted on each of said broadcast channels.

22. The method of claim 21 further comprising the step of storing the recovered program data transmitted on each broadcast channel; and wherein the step of displaying a program comprises selecting the stored program data that had been transmitted on a desired broadcast channel, and displaying said selected program data.

23. The method of claim 13 wherein at least one of the received broadcast channels is a promotional channel and the program data transmitted thereon is promotional video and audio data representing particular programs transmitted on several other broadcast channels.

24. The method of claim 23 wherein said text data is selectively retrieved and displayed in superposition over a promotional video display as a table of programs transmitted on non-promotional broadcast channels.

25. The method of claim 23 wherein said text data is selectively retrieved and displayed in superposition over a promotional video display as a table of programs to be transmitted on a selected non-promotional broadcast channel.

26. The method of claim 23 wherein said text data is selectively retrieved and displayed in superposition over a

promotional video display as a description of a selected program to be transmitted on a non-promotional broadcast channel.

27. The method of claim 13 further comprising the steps of displaying a text window superimposed over said displayed program; selecting one of the displayed reduced size images; and displaying in said text window said text data representing information associated with the program identified by said selected reduced size image.

28. The method of claim 27 wherein the text data displayed in said text window includes title of said identified program and broadcast channel over which said identified program is transmitted.

29. The method of claim 11, further comprising the steps of pre-storing predetermined display indicia; receiving as part of said EPG data access information for accessing selected display indicia; reading out said selected display indicia in response to the received access information; and displaying said selected display indicia in superposition over said displayed program.

30. Apparatus for transmitting an electronic program guide (EPG) to identify programs which are to be transmitted, comprising:

generating means for generating EPG data including image data representing images of reduced, less than normal, size to identify respective programs which are to be transmitted;

a source of program data constituting at least one program currently being transmitted;

combining means for combining said EPG data and said program data; and

transmission means for transmitting the combined data.

31. The apparatus of claim 30 wherein said EPG data further includes text data representing information associated with said identified programs, said information comprising at least one of title data identifying the title of a program to be transmitted, broadcast data identifying date and time at which said program is to be transmitted and description data providing a description of the program to be transmitted.

32. The apparatus of claim 31, further comprising means for generating text data associated with said at least one program currently being transmitted; and means for combining said text data with said EPG data and said program data; and wherein said transmission means transmits the combined EPG data, program data and text data.

33. The apparatus of claim 32 wherein said text data associated with said at least one program comprises at least one of title data identifying the title of the program currently being transmitted, category data identifying a category type of the program currently being transmitted, and transmission channel data identifying the transmission channel over which said program is currently being transmitted.

34. The apparatus of claim 31 wherein said source of program data comprises means for supplying video and audio data of plural programs, each being transmitted over a respective broadcast channel, and data compression means for compressing said video and audio data to produce compressed program data of said plural programs.

35. The apparatus of claim 34 wherein said combining means comprises multiplexing means for multiplexing the EPG image and text data with said compressed program data of said plural programs, and wherein the number of programs identified by said EPG data is substantially greater than the number of programs with which said EPG data is multiplexed.

36. The apparatus of claim 35 wherein said generating means is operable to update said EPG data periodically.

37. The apparatus of claim 36 wherein said EPG text data comprises program table data formed of said title and broadcast data and program content data formed of said description data; and wherein said program table data is associated with programs currently being transmitted and to be transmitted during a predetermined time period, and said program content data is associated with said programs currently being transmitted and to be transmitted during a fraction of said predetermined time period.

38. The apparatus of claim 31 wherein said source of program data comprises promotion data generating means for

supplying audio data and a single frame of video data of respective programs to form promotional programs data, each promotional program being transmitted over a respective broadcast channel, and promotion data compression means for compressing said audio and video data to produce compressed promotional program data of plural promotional programs; and wherein said combining means comprises multiplexing means for multiplexing the EPG image and text data with said compressed promotional data, the title and broadcast data of said EPG text data constituting program table data and the description data of said EPG text data constituting program content data, such that the multiplexed program table data is associated with programs currently being transmitted and to be transmitted during a predetermined time period and the multiplexed program content data is associated with said programs currently being transmitted and to be transmitted during a fraction of said predetermined time period.

39. The apparatus of claim 30 wherein said source of program data comprises means for supplying groups of program data, each group including video and audio data associated with plural programs, each program being transmitted over a respective broadcast channel, and means for compressing the video and audio data of each group to produce groups of compressed program data; wherein said combining means comprises means for multiplexing said EPG data with each group of compressed program data to produce respective data output channels; and wherein said

transmission means comprises satellite transponders and means supplying each data output channel to a respective satellite transponder for satellite transmission over respective transponder channels.

40. Apparatus for receiving electronic program guide (EPG) and program data transmitted on plural broadcast channels, said EPG data including image data representing images of reduced, less than normal size to identify respective programs which currently are and will be transmitted on several broadcast channels and said program data including video and audio data of plural programs currently being transmitted on respective broadcast channels, said apparatus comprising:

receiving means for receiving the program data transmitted on different broadcast channels and the EPG data transmitted with said program data;

separating means for separating the received EPG data from the received program data;

storage means for storing the separated EPG data;

display means for displaying a program represented by the separated program data;

read-out means for selectively retrieving said EPG data from said storage means; and

means for displaying on said display means said images of reduced, less than normal size represented by said retrieved EPG data in superposition over the displayed program.

41. The apparatus of claim 40 wherein the received EPG data further includes text data representing information associated with each program identified by said image data; and said read-out means is operable to retrieve said text data from said storage means and supply the retrieved text data to said display means.

42. The apparatus of claim 41 further comprising image selecting means for selecting one of the displayed reduced size images to cause said read-out means to retrieve from said storage means the text data associated with the program identified by said selected reduced size image for display therewith.

43. The apparatus of claim 42 wherein said text data includes title data identifying the title of the associated program, broadcast data identifying data, time and broadcast channel at which said associated program is to be transmitted, and description data providing a description of said associated program.

44. The apparatus of claim 42 wherein said image selecting means comprises a cursor and cursor control means operable by a user to position said cursor at a desired one of the displayed reduced size images and thereby select said desired reduced size image.

45. The apparatus of claim 40 wherein said retrieved EPG data identifies respective programs which currently are being transmitted; and further comprising image selecting means for

selecting one of the displayed reduced size images and tuning means for tuning said apparatus to the broadcast channel which transmits the program identified by the selected reduced size image.

46. The apparatus of claim 41 wherein said text data comprises program table data formed of title, data, time and broadcast channel data for each of the respective programs to be transmitted.

47. The apparatus of claim 46 wherein said text data additionally comprises program content data providing a summary of the content of each of the respective programs to be transmitted.

48. The apparatus of claim 47 wherein said program table data is associated with programs currently being transmitted and programs to be transmitted during a predetermined time period, and said program content data is associated with said programs currently being transmitted and said programs to be transmitted during a fraction of said predetermined time period.

49. The apparatus of claim 47 wherein the received EPG data is multiplexed with the received program data.

50. The apparatus of claim 49 wherein the received program data is compressed and the receiving means includes decompressing means for expanding the compressed program data.

51. The apparatus of claim 49 wherein the EPG data and program data are received via satellite transmission channels,

each satellite transmission channel comprising plural broadcast channels multiplexed with the EPG data; and wherein the separating means comprises demultiplexing means for demultiplexing each satellite transmission channel to recover said EPG data and the program data transmitted on each of said broadcast channels.

52. The apparatus of claim 51 further comprising tuning means for tuning said apparatus to a selected broadcast channel; memory means for storing the recovered program data transmitted on the selected broadcast channel; and means for reading out the program data stored in said memory means and supplying same to said display means to display said read out program data.

53. The apparatus of claim 41 wherein at least one of the received broadcast channels is a promotional channel and the program data transmitted thereon is promotional video and audio data representing particular programs transmitted on several other broadcast channels.

54. The apparatus of claim 53 wherein said display means is operable to display the retrieved text data in superposition over a promotional video display as a table of programs transmitted on non-promotional broadcast channels.

55. The apparatus of claim 53 wherein said display means is operable to display the retrieved text data in superposition over a promotional video display as a table of

programs to be transmitted on a selected non-promotional broadcast channel.

56. The apparatus of claim 53 wherein said display means is operable to display the retrieved text data in superposition over a promotional video display as a description of a selected program to be transmitted on a non-promotional broadcast channel.

57. The apparatus of claim 40, further comprising a memory for pre-storing predetermined display indicia, said receiving means being operable to receive as part of said EPG data access information for accessing selected display indicia, said read-out means being operable to read out said selected display indicia in response to the received access information; and said display means being operable to display said selected display indicia in superposition over said displayed program.

58. The apparatus of claim 41 wherein said display means is operable to display a text window superimposed over said displayed program; and further comprising image selecting means for selecting one of the displayed reduced size images to cause said read-out means to retrieve said text data representing information associated with the program identified by said selected reduced size image for display in said text window.

59. The apparatus of claim 58 wherein the text data displayed in said text window includes title of said identified program and broadcast channel over which said identified program is transmitted.

60. A method of transmitting and receiving an electronic program guide (EPG) to identify programs which are to be transmitted, comprising the steps of:

generating EPG data including image data representing images of reduced, less than normal, size to identify respective programs which are to be transmitted;

providing program data constituting at least one program currently being transmitted;

combining said EPG data and said program data;

transmitting the combined data;

receiving the combined program and EPG data;

separating the received EPG data from the received program data;

storing the separated EPG data;

displaying the program represented by the separated program data;

selectively retrieving said stored EPG data; and

displaying said images of reduced, less than normal size represented by said retrieved EPG data, the reduced size images being displayed in superposition over the displayed program.

61. The method of claim 60 wherein said EPG data further includes text data representing information associated with said identified programs, said information comprising at least one of title data identifying the title of a program to be transmitted, broadcast data identifying date and time at which said program is to be transmitted and description data providing a description of the program to be transmitted.

62. The method of claim 61 wherein said step of providing program data comprises supplying video and audio data of plural programs, each being transmitted over a respective broadcast channel, and compressing said video and audio data to produce compressed program data of said plural programs.

63. The method of claim 62 wherein the step of combining comprises multiplexing the EPG image and text data with said compressed program data of said plural programs, and wherein the number of programs identified by said EPG data is substantially greater than the number of programs with which said EPG data is multiplexed.

64. The method of claim 61 wherein said program data is provided by supplying audio data and a single frame of video data of respective programs to form promotional programs data, each promotional program being transmitted over a respective broadcast channel, and compressing said audio and video data to produce compressed promotional program data of plural promotional programs; and wherein said EPG data and the compressed

promotional data are combined by multiplexing the EPG image and text data with said compressed promotional data, the title and broadcast data of said EPG text data constituting program table data and the description data of said EPG text data constituting program content data, such that the multiplexed program table data is associated with programs currently being transmitted and to be transmitted during a predetermined time period and the multiplexed program content data is associated with said programs currently being transmitted and to be transmitted during a fraction of said predetermined time period.

65. The method of claim 60 wherein the step of providing program data comprises supplying groups of program data, each group including video and audio data associated with plural programs, each program being transmitted over a respective broadcast channel, and compressing the video and audio data of each group to produce groups of compressed program data; wherein the step of combining said EPG data and said program data comprises multiplexing said EPG data with each group of compressed program data to produce respective data output channels; and wherein the step of transmitting comprises supplying each data output channel to a respective satellite transponder for satellite transmission over respective transponder channels.

66. The method of claim 60 further comprising the steps of selecting one of the displayed reduced size images and

displaying the program identified by the selected reduced size image.

67. The method of claim 66 wherein the EPG data further includes text data representing information associated with each program identified by said image data, said text data being selectively retrieved from said stored EPG data and displayed; and further comprising the step of displaying the selected reduced size image and the text data associated with the program identified by said selected reduced size image.

68. The method of claim 67 wherein the combined EPG and program data are multiplexed together and the received program data is compressed; and wherein the step of receiving the program data includes the step of expanding the compressed program data.

69. The method of claim 68 further comprising the step of storing the received program data; and wherein the step of displaying the program comprises selecting stored program data that had been transmitted on a desired broadcast channel, and displaying said selected program data.

70. The method of claim 60 wherein plural broadcast channels of program data are transmitted; and at least one of the received broadcast channels is a promotional channel and the program data transmitted thereon is promotional video and audio data representing particular programs transmitted on several other broadcast channels.

71. The method of claim 67 further comprising the steps of displaying a text window superimposed over said displayed program; selecting one of the displayed reduced size images; and displaying in said text window said text data representing information associated with the program identified by said selected reduced size image.

72. The method of claim 60, further comprising the steps of pre-storing predetermined display indicia; transmitting as part of said EPG data access information for accessing selected display indicia; reading out said selected display indicia in response to received access information; and displaying said selected display indicia in superposition over said displayed program.

73. Apparatus for transmitting and receiving an electronic program guide (EPG) to identify programs which are to be transmitted, comprising:

generating means for generating EPG data including image data representing images of reduced, less than normal, size to identify respective programs which are to be transmitted;

a source of program data constituting at least one program currently being transmitted;

combining means for combining said EPG data and said program data;

transmission means for transmitting the combined data;

receiving means for receiving the combined program and EPG data;

separating means for separating the received EPG data from the received program data;

storage means for storing the separated EPG data;

display means for displaying the program represented by the separated program data;

read-out means for selectively retrieving said EPG data from said storage means; and

means for displaying on said display means said images of reduced, less than normal size represented by said retrieved EPG data in superposition over the displayed program.

74. The apparatus of claim 73 wherein said EPG data further includes text data representing information associated with said identified programs, said information comprising at least one of title data identifying the title of a program to be transmitted, broadcast data identifying date and time at which said program is to be transmitted and description data providing a description of the program to be transmitted.

75. The apparatus of claim 74 wherein said source of program data comprises means for supplying video and audio data of plural programs, each being transmitted over a respective broadcast channel, and data compression means for compressing said video and audio data to produce compressed program data of said plural programs.

76. The apparatus of claim 75 wherein said combining means comprises multiplexing means for multiplexing the EPG image and text data with said compressed program data of said plural programs, and wherein the number of programs identified by said EPG data is substantially greater than the number of programs with which said EPG data is multiplexed.

77. The apparatus of claim 71 wherein said source of program data comprises promotion data generating means for supplying audio data and a single frame of video data of respective programs to form promotional programs data, each promotional program being transmitted over a respective broadcast channel, and promotion data compression means for compressing said audio and video data to produce compressed promotional program data of plural promotional programs; and wherein said combining means comprises multiplexing means for multiplexing the EPG image and text data with said compressed promotional data, the title and broadcast data of said EPG text data constituting program table data and the description data of said EPG text data constituting program content data, such that the multiplexed program table data is associated with programs currently being transmitted and to be transmitted during a predetermined time period and the multiplexed program content data is associated with said programs currently being transmitted and to be transmitted during a fraction of said predetermined time period.

78. The apparatus of claim 73 wherein said source of program data comprises means for supplying groups of program data, each group including video and audio data associated with plural programs, each program being transmitted over a respective broadcast channel, and means for compressing the video and audio data of each group to produce groups of compressed program data; wherein said combining means comprises means for multiplexing said EPG data with each group of compressed program data to produce respective data output channels; and wherein said transmission means comprises satellite transponders and means supplying each data output channel to a respective satellite transponder for satellite transmission over respective transponder channels.

79. The apparatus of claim 74 further comprising image selecting means for selecting one of the displayed reduced size images to cause said read-out means to retrieve from said storage means the text data associated with the program identified by said selected reduced size image for display therewith.

80. The apparatus of claim 79 wherein said image selecting means comprises a cursor and cursor control means operable by a user to position said cursor at a desired one of the displayed reduced size images and thereby select said desired reduced size image.

81. The apparatus of claim 80 wherein the combined EPG and program data are multiplexed together and the received

program data is compressed; and wherein the receiving means includes decompressing means for expanding the compressed program data.

82. The apparatus of claim 81 wherein the transmission means transmits the EPG data and program data via satellite transmission channels, each satellite transmission channel comprising plural broadcast channels multiplexed with the EPG data; and wherein the separating means comprises demultiplexing means for demultiplexing each satellite transmission channel to recover said EPG data and the program data transmitted on each of said broadcast channels.

83. The apparatus of claim 82 further comprising tuning means for tuning said apparatus to a selected broadcast channel; memory means for storing the recovered program data transmitted on the selected broadcast channel; and means for reading out the program data stored in said memory means and supplying same to said display means to display said read out program data.

84. The apparatus of claim 82 wherein at least one of the transmitted broadcast channels is a promotional channel and the program data transmitted thereon is promotional video and audio data representing particular programs transmitted on several other broadcast channels.

85. The apparatus of claim 73, wherein said storage means includes a memory for pre-storing predetermined display

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